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| 10/536,831 | 12/02/2005 | Maurizio Galimberti | 07040.0226-00000 | 6451 |
| 22852 | 7590 | 04/14/2009 | EXAMINER | |
| FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413 | | | ORLANDO, MICHAEL N | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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|------------------------------|---------------------------------------|--|
| Office Action Summary | Application No. 10/536,831 | Applicant(s) GALIMBERTI ET AL. |
| | Examiner MICHAEL N. ORLANDO | Art Unit 1791 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 28 January 2009.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 58-106 is/are pending in the application.

4a) Of the above claim(s) 70-95 is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 58-69 and 96-106 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/95/08)
Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____

5) Notice of Informal Patent Application

6) Other: _____

DETAILED ACTION

The arguments submitted 01/28/2009 have been full considered, but were not persuasive. The merits of the claims remain unpatentable over the prior art as set forth below.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 58-67, 96-98, 100-103, 105 and 106 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caretta et al. (US 2001/0042586 A1) in view of Takeyama et al. (US 6,334,919 B1) and Schaal (US 6,482,884 B1).

Regarding claim 58-60, Caretta discloses a method of producing a tire whereby an elastomeric material is fed from a dispensing organ (discloses as an extruder; [0022]) as a continuous elongated element and deposited on a toroidal support in a plurality of coils to define the tire component (i.e. the structural element of the tire) ([0001]-[0002]).

Caretta fails to teach extruding at the specific shear rate and adding viscosity reducing additives to the elastomeric composition.

Takeyama, drawn also to tire production, discloses processing conditions that involve a shear rate in the range of 1000-7500sec⁻¹ (column 9, lines 40-42). It would have been obvious for one having ordinary skill in the art to have used such processing conditions (i.e. high shear rates) in view of Takeyama because it was known that using such a high shear rate in the process of kneading and extruding involves proper mixing of the additive components (column 9, lines 16-24). Also, such is equally an obvious modification due to the fact that such is from the same field of endeavor and therefore applicable under the first prong of In re Wood.

Schaal, drawn to rubber compositions useful in the production of tires, discloses adding small inorganic compounds to the rubber composition to lower the viscosity (column 4, lines 45-58). It would have been obvious for one having ordinary skill in the art at the time of the invention to have included small organic compounds for lowering the viscosity of a rubber composition used to make tires in view of Schaal because such was known to offer improved processability as well as improved resistance against the decay of processability during storage (column 3, lines 35-45). As to the additives specifically reducing the elongational viscosity, the examiner submits that the additives of Schaal are doing just that because even Schaal appreciates that decreases in Mooney viscosity alone are not advantageous and do nothing to cure the deficiencies of storage temperature dependence (column 3, lines 1-5) as the viscosity reducing additives of Schaal have are able to do. As to the specific reduction in viscosity at a temperature of 120.degrees.C the examiner notes that such is merely an optimization of the amount of viscosity reducer being added (more additive relates to more of a decrease in viscosity to a reasonable point). The courts have held that generally, differences in concentration or temperature (in this case concentration of additive) will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claims 61-63, the support of Caretta is toroidal and rotating ([0001]) and as can be seen from the figure it is rigid (see figure 3, reference 3).

Regarding claims 64 and 65, Caretta fails to explicitly teach said draw ratio; however, such is merely an artifact of both the extrudability of the rubber composition (which is known to have been increased in view of Schaal) and optimization of extrusion parameters. It would have been within the purview of an ordinary skilled artisan at the time of the invention to have tailored the extrusion parameters as desired to obtain proper deposition of the composition onto the support.

Regarding claims 66 and 67, the method of claim 58 is taught above and Takeyama provides the utilization of shear rates in the range of $1000\text{-}7500\text{sec}^{-1}$, which substantially encompasses even the most specific range claimed of $4000\text{-}6000\text{sec}^{-1}$. Although the specific range is not explicitly set forth by Takeyama, such would have been an obvious range because the courts have held that where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

Regarding claims 96 and 97, Schaal further teaches that the viscosity reducing compounds are adding to the rubber compositions in an amount of preferably 0.5-6 phr (column 14, lines 60-63). Although the specific range is not explicitly set forth by Takeyama, such would have been an obvious range because the courts have held that where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a

prima facie case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

Regarding claim 98 and 100, the elastomer composition of Schaal may utilize polybutadiene (column 15, lines 4-30). It would have been obvious to have utilized the specific elastomer composition of Schaal (including the organic viscosity reducers provided above) because such was known to be a reinforced rubber composition for use in tire production that offers numerous advantages such as improved processability and storage stability (column 1, lines 10-14).

Regarding claims 101 and 102, Schaal provides EPDM as a suitable rubber choice (column 15, line 19).

Regarding claims 103 and 105, Schaal discloses silica and carbon black as suitable fillers (column 15, lines 54-55). In the working examples Schaal provides silica in the amount of 60 phr (table 1). Regarding claims 107-110 and 112-114, all of the limitations have been addressed above.

5. Claims 68 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caretta et al. (US 2001/0042586 A1), Takeyama et al. (US 6,334,919 B1) and Schaal (US 6,482,884 B1), as applied to claim 58 above, further in view of Wittenwyler (US 3,865,777).

Regarding claims 68 and 69, Schaal does not teach the specific glycidyl ester compositions as presented in the claims, but teaches substantially similar compositions (column 8, line 40; column 13, line 20), which are small and contain both glycidyl and ester groups (i.e. they are glycidyl esters). It is impossible for the Schaal reference to list

every possible small glycidyl ester that would have been suitable for lowering the viscosity and improving storage stability; however, an ordinary skilled artisan armed with the teachings of Schaal would have appreciated that other small glycidyl esters would have had a reasonable expectation of performing a similar function especially those that are already known in the art as being suitable viscosity reducers in addition to already being substantially similar to those of Schaal.

Wittenwyler, drawn to polyepoxide compositions, discloses the use of the presently claimed glycidyl ester for the purpose of reducing the viscosity (column 5 line 38 – column 6, line 5). It is noted that the acid component can consist of two propyl groups and a hydrogen and therefore will fall in the range of 6-22 carbon atoms.

It would have been obvious to an ordinary skilled artisan at the time of the invention armed with the knowledge of Schaal to recognize that similarly structured small glycidyl esters to those of Schaal would have been able to perform a similar function and increasing obvious if said analogues are already characterized in the art as being known viscosity reducers. Further in regard to the abovementioned, it would have been obvious to one having ordinary skill in the art at the time of the invention to have utilized the glycidyl ester of Wittenwyler for the purpose of reducing the viscosity of Schaal's rubber composition with predictable success. Though Wittenwyler is drawn to a different field of endeavor the reference is pertinent to the applicant's particular problem, which is achieving an adequate decrease in viscosity and given that one of ordinary skill would have appreciated the full invention of Schaal it would have been

reasonable to look to the teachings of Wittenwyler for viscosity reducers of similar chemical make-up that would also have been useable.

6. Claims 99 and 104 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caretta et al. (US 2001/0042586 A1), Takeyama et al. (US 6,334,919 B1) and Schaal (US 6,482,884 B1), as applied to claims 98 and 107 above, further in view of Sandstrom et al. (US 5,216,066).

Regarding claim 99, as seen above Schaal provides a host of suitable rubbers many of which would reasonably have an inherent glass transition temperature below 20.degrees.C, though further proof of such is provided below. It is further noted that Schaal appreciates blends of synthetic and natural rubbers (column 15, lines 4-7).

Sandstrom provides that a Tg value below -50.degrees.C is defined as a low Tg rubber (column 2, lines 9-10) and Sandstrom offers the use of such in the rubber composition at varying concentrations (column 2, lines 33-41).

It would have been obvious for one having ordinary skill in the art at the time of the invention to have included a blend of rubbers including some with low Tg values (i.e. below -50.degrees.C)in view of Sandstrom because such were known to have imparted advantageous properties to the blended rubber such as low rolling resistance and good wear resistance (column 8, lines 36-46).

Regarding claims 104, Schaal discloses silica and carbon black as suitable fillers (column 15, lines 54-55). In the working examples Schaal provides silica in the amount of 60 phr (table 1). Although no specific example is given for carbon black, which was appreciated as an alternative reinforcing filler it would have been an obvious choice to

substitute one known reinforcing filler (carbon black) for another (silica) at similar concentrations. The courts have held that generally, differences in concentration or temperature (in this case concentration of the reinforcing filler) will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. Also it is noted that Sandstrom appreciates the preferable range for carbon black as 50-60 phr (i.e. further strengthening the examiner's argument that it would have been obvious to use a similar amount of carbon black to the amount of silica if substituted) (See Sandstrom; column 7, lines 40-48).

Response to Arguments

Applicant's arguments filed 01/28/2009 have been fully considered but they are not persuasive.

The applicant contends that it would not have been obvious to have used the viscosity reducing additives in view of Schaal.

The examiner disagrees and notes that Schaal is particularly applicable because the reference provides an additive known for addition to tire formulations that can provide improved processability. As specifically noted by Schaal, the additive provides improved processability (i.e. easier to mix and extrude) as well as the improvement of processability over time (column 3). The applicant argues as though the only advantage is the improvement of processability over time though Schaal explicitly states that the

general processability is enhanced as well as the processability over time (however even the processability improvement over time would have been a suitable reason to include the additive since clearly a formulation that can be mixed and stored without degrading processability is advantageous over one which is less processable over time and therefore cannot be stored). An ordinary skilled artisan therefore would have found ample motivation to add the additive because it could provide increased processability and increased processability over time. As to the reduction in the elongational viscosity the examiner notes that Schaal explicitly states that the additives generally reduce viscosity (column 4, lines 54-56) and therefore elongation viscosity would be expected to decrease since viscosity as a whole is decreasing. Note: Where ... the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of the claimed product. Whether the rejection is based on "inherency" under 35 USC § 102, on "prima facie obviousness" under 35 USC § 103, jointly or alternatively, the burden of proof is the same, and its fairness is evidenced by the PTO's inability to manufacture products or to obtain and compare prior art products." In re Best, 562 F2d 1252, 1255, 195 USPQ 430, 433-4 (CCPA 1977). In this case the applicant would need to show that the general viscosity reduction imparted by Schaal's additives does not include a reduction in the elongational viscosity. As to the argument of Schaal not being applicable because the reference is drawn to silica based rubber tires, the examiner disagrees. In fact Schaal specifically notes that the rubber is useful in tire production of

varying formulations of tires (column 14, line 64 – column 15, line 30). It would be reasonably expected that an additive known to impart a function when added to tire formulations would be able to perform that function when added to other tire formulations especially when the reference which discloses the additive indicates that the rubber in the tire can be blends of a numerous different types of typical tire rubbers. This is not a situation where the rejection is a statement that it would have been "obvious to try" without more. Here there was a reasonable expectation of success because the additives are known to function in different tire formulations. "Obviousness does not require **absolute predictability** of success." Id. at 903, 7 USPQ2d at 1681.

The applicant contends that it would not have been obvious to utilize the claimed shear rate in view of Takeyama.

The examiner disagrees and first notes that Caretta explicitly discloses extrusion as a formation process though is silent as to the shear rate. Given this silence it would have been more than pertinent for an ordinary skilled artisan to seek out known shear rates in the art that may be beneficial. Caretta is therefore appreciating that the general method of extruding is applicable and therefore unless the applicant can provide unexpected results the choice of a particular shear rate appears to merely be a design choice obvious over the teachings of Caretta. In examining prior art relevant to tire production it can be seen that Takeyama discloses that when producing tires the formulation may be mixed and prepared in a kneader and extruder with shear rates being 1000-7500sec-1 (column 9). Given the silence of Caretta as to the particular shear rate an ordinary skilled artisan therefore would have sought out useable shear

rates and therefore Takeyama is particularly relevant since the reference discloses that shear rates in excess of 1000sec-1 provide particularly good mixing. As to the deformation at higher shear rates there is nothing in Takeyama to suggest that Caretta's tire formulation would deform at shear rates over 1000sec-1 and there is nothing in Caretta to suggest such shear rates would not be useable. This appears to merely be a choice of a shear rate which is already known and appreciated in the art of tire production. An ordinary skilled artisan clearly would have been able to discern whether deformation (with none being expected in the lower ranges) was taking place and any argument to the contrary assumes stupidity rather than skill.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Caretta provides the general method of tire production. Takeyama provides a shear rate that can be used during production to ensure proper mixing. Schaal provides an additive for addition to tire formulations that can lower viscosity.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL N. ORLANDO whose telephone number is (571)270-5038. The examiner can normally be reached on Monday-Thursday, 7:30am-4:30pm, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip C. Tucker can be reached on (571) 272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MO

/Philip C Tucker/
Supervisory Patent Examiner, Art Unit 1791